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NUMERAL SYSTEMS OF THE COSTA RICAN INDIANS

By H. PITTIER DE FÁBREGA

In the *Nineteenth Annual Report* of the Bureau of American Ethnology there appears an extensive memoir on the "Numeral Systems of Mexico and Central America," by Dr Cyrus Thomas. This work contains many facts and interesting suggestions, and it may be regarded as exhaustive in so far as it relates to the numeral systems of Mexico and the adjacent parts of Central America. We regret, however, to find several errors, some of which would indicate that the author was not familiar with all the literature pertaining to the languages of southern Central America.

In the present paper I desire to offer what I hope will prove to be a better explanation of the numeral systems of the several Costa Rican tribes; but first I wish to call attention to a few points in Dr Thomas's memoir. On page 882, we read: "The four following lists are from R. F. Guardia (*Lenguas indígenas Cent. Am. Siglo*, pages 101 and 110). The tribes are classed with the Chibcha group, a South American stock, but are, or were, located in Guatemala and Porto Rico." Then follow the lists, which include three Costa Rican languages and the Lean y Mulía. As the Cabécara, Viceyta, and Lean y Mulía appear under the same head, it will be natural for the casual reader to regard them as belonging to a single stock. But I do not see how such an investigator as Dr Thomas, who may be considered an authority on the distribution of the languages and tribes of Central America, could overlook the identity of the Lean y Mulía numerals with those of the Jicaque de Yoró (Honduras), published on page 915 of his memoir:

1.	*pani*	*pani*
2.	*matiaa*	*mata*
3.	*contias*	*condo*
4.	*chiquitia*	*diurupana*
5.	*cumasopni*	*comasopeni*
	etc.	etc.

A comparison of the vocabularies published by Fernández y Ferráz and Membreño[1] illustrates better still the identity, so that it is easy to understand that the Lean y Mulía were families of the Jicaque stock and were placed next to our two Costa Rican languages simply because the monk who understood these was also acquainted with the first ones. The Jicaque stock is situated in Honduras and not in Guatemala or "Porto Rico," as Costa Rica is called in Dr Thomas's paper.

On page 914 are found the numerals of the "Morenos" of Honduras. As explained by Membreño in his *Hondureñismos* (p. 193 et seq.), the Morenos are Caribs, brought to the mainland from the island of St Vincent, and their numerals are intermixed with French, not with Spanish as Dr Thomas asserts.

	MORENO	FRENCH	SPANISH
4	*gadri*	*quatre*	*cuatro*
5	*senc*	*cinq*	*cinco*
6	*sis*	*six*	*seis*
7	*set*	*sept*	*siete*
8	*vit*	*huit*	*ocho*
9	*nef*	*neuf*	*nueve*
10	*dis*	*dix*	*diez*

I fear, moreover, that the *cinca* of the Sumos, and especially the *aunqui* of the Payas, have nothing to do with the Spanish *cinco*, notwithstanding their apparent likeness.

Now, to return to the numeral systems of Costa Rica, I would first state that Dr Thomas seems to have overlooked the two very important publications of Thiel[2] and Gabb,[3] and also the essays of Gagini and Pittier.[4] The first two are fundamental to the study of Bribri, or Viceyta, and to that of several other dialects; and in the latter the numeral systems are explained at length, at least for the Bribri and Térraba. In recent years I have been enabled to make a partial investigation of most of the other native languages still spoken in Costa Rica, the results of which, in relation to the numerals, I shall here endeavor to give.

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[1] Alberto Membreño, *Hondureñismos: Vocabulario de los provincialismos de Honduras*, 2ª edición, Tegucigalpa, 1897.

[2] Dr Bernardo Augusto Thiel, *Apuntes lexicográficos de las lenguas y dialectos de los Indios de Costa Rica*, San José de Costa Rica, 1882.

[3] Williams M. Gabb, *On the Indian Tribes and Languages of Costa Rica*, Proceedings Amer. Philosophical Society, Philadelphia, 1875.

[4] H. Pittier and C. Gagini, *Ensayo lexicográfico sobre la lengua de Térraba*, San José de Costa Rica, 1892. H. Pittier de Fábrega, *Die Sprache der Bribri Indianer in Costa Rica, herausgegeben und mit einer Vorrede versehen von Dr. Friedrich Müller.* Mit einer Karte. Wien, 1898.

1. BRIBRI

As already shown by Gabb, the Bribri have six distinct modes of counting, dependent on the shape or nature of the objects to be counted. In explanation of these methods, it will suffice to reproduce the examples given in my *Sprache der Bribri:*

BRIBRI MODES OF COUNTING

(*a*) *For People*

Së̄ ekur	1 person	(lit. us one, or our one)
së̄ búúr	2 persons	
së̄ mñor	3 "	
së̄ kur	4 "	
së̄ sker	5 "	
së̄ terul	6 "	
së̄ kuúr	7 "	
sê pagul	8 "	
së̄ surí-tu	9 "	
së̄ dábop	10 "	
së̄ dabop ki ekur	11 "	(lit. ten upon one)
së̄ dabop ki buúr	12 "	
së̄ dë̄bop buu djuk	20 "	(lit. to do two, or twice ten)
së̄ dë̄bop buu djuk ki ekur	21 "	
së̄ dë̄bop mña djuk	30 "	
së̄ dë̄bop kie djuk	40 "	
së̄ dë̄bop ske djuk	50 "	
së̄ dë̄bop ker djuk	60 "	
së̄ dë̄bop kuúr djuk	70 "	
së̄ dë̄bop par djuk	80 "	
së̄ dë̄bop surí-tu	90 "	
së̄ dë̄bop djuk dë̄bop	100 "	(lit. to do ten times ten)

In this case the expression corresponding to the number is preceded by the pronoun *së̄*, we, us ; *Së̄ ekur*, *së̄ búúr*, etc., should be translated 'one of us,' 'two of us,' etc.

(*b*) *Round Objects*

áx ek	1 orange
áx buúk	2 oranges
áx mñor	3 “

and so on, as for people. Here, as in every other case, the name of the objects to be counted precedes the numeral, and the only distinguishing feature is a slight variation in the form of the latter.

(*c*) *Small Animals*

du etk	1 bird
du butk	2 birds
du mñatk	3 “
du kir	4 “

and so on. Same observations as for round objects.

(*d*) *Long Objects and Large Animals*

stsa é-tub	1 rope
stsa bu-tub	2 ropes
stsa mña-tub	3 “
stsa ki-tub	4 “
stsa ske-tub	5 “
stsa tek-tub	6 “
stsa tuk-tub	7 “
stsa pak-tub	8 “
stsa surí-tub	9 “
stsa dĕbop-tub	10 “
stsa dĕbop ki e-tub	11 “

The numeral is followed by the particle *tub*, the meaning of which I have not as yet been able to ascertain.

(*e*) *Trees and Plants*

tsirú iré kar	1 cacao tree
tsirú bur kar	2 cacao trees
tsirú mñor kar	3 “ “
tsirú kir kar	4 “ “
tsirú sker kar	5 “ “
tsirú tĕrul kar	6 “ “
tsirú kur kar	7 “ “
tsirú pagur kar	8 “ “

tsirú suri-tu kar	9 cacao trees
tsirú dëbop kar	10 " "
tsirú dëbop ki er-kar	11 " "

and so on, as for the first series. In counting trees, the name of the special tree (here *tsirú*, cacao) precedes the numeral, which is followed by the generic name *kar*, tree.

(*f*) *Houses*

hú etk ué	1 house
hú butk ué	2 houses
hú mñatk ué	3 "
hú kir ué	4 "
hú sker ué	5 "
hú terur ué	6 "
hú kur ué	7 "
hú págur ué	8 "
hú suri-tu ué	9 "
hú dëbop ué	10 "
hú dëbop ki etk ué	11 "

and so on. The mode of counting houses is analogous to that for trees, except that the suffix is *ué*.

2. CABÊCARA

In the Cabécara language the first five numerals are *é-kra*, *boor*, *mĕñar*, *kir*, and *sker*, with the following variations:

é-tka hú tré	1 house
boor hú tré	2 houses, etc.
gsa djuri é-tba	1 rope
gsa djuri bo-tbú	2 ropes
gsa djuri mña tbŭ	3 "
gsa djuri tki-tbú	4 "
gsa djuri sker-tbú	5 "
tsirú-kurú er-ka-ri	1 cacao tree
tsirú-kurú bor-ka-ri	2 cacao trees, etc.

For people, round objects, and birds or other small animals, the Cabécara use the ordinary numerals, preceded by the name of the object counted and without a suffix. The Cabécara have also ordinal numbers, as follows:

i-së-këtu	first
i-tú-ki	second
i-bë-ta	third
i-xà-na	fourth

In comparing the four dialects of the Cabécara language, a few slight variations are observed. The examples given are from the Coen dialect, which I have studied at length. One and two, *é-kra* and *bo-or*, remain the same; *mëñar* differs only in its terminal vowel being more or less open, i. e., it passes gradually through *a*, *â*, and *o*. *Kir* takes a *b* initial in the Chirripó and Tucurrique dialects (*e-kir*), and sometimes a *t* (*t-kir-i*) in Cabécara. In Chirripó, *sker*, five, becomes *skun-grë*.

The Tucurrique count only to five in their language, and thence onward employ the Spanish numerals. For numerals six to nine the Coen repeat the count from one to five, adding the prefix *ki*, 'upon': *ki-e-kra* upon one, *ki-boor* upon two, etc. The Estrella and Chirripó have special terms, viz., *ter-lu* or *ter-ë-re* six, *kur* seven, *pagr* eight, *tëne-grë* nine. In the four dialects ten is *dë-bop* or *dë-bom*, and none of them seems to extend beyond this. On asking a Cabécara why he did not count like the Estrella people, he answered, "Because *this* is the only right way," and at the same time put his left thumb against his right thumb and said, "*ki-é-kra*"; then he placed his left index against his right index and said, "*ki-boor*," etc.

3. TÉRRABA

The Térraba language seems in many ways to have been systematized, probably at the instance of Franciscan missionaries. For example, there are two definite series of numerals, characterized by the prefixes *kró* and *kuó*, the first of which is employed in counting long objects, the other in counting rounded ones. In fact, *kró* means 'tree,' and *kuó* 'round.' The Brurán people can count up to one thousand, although I doubt whether there is among them any one who can conceive such a quantity.

1.	*kua-rá*	*kra-rá*
2.	*kuú-bú*	*kru-bú*

3.	*kuo-miá*	*kro-miá*
4.	*kuo-bkin*	*kro-bkin*
5.	*kuo-xkin*	*kro-xkin*
6.	*kuo-terrë*	*kro-tërre*
7.	*kuo-kok*	*kro-kok*
8.	*kuo-kuong*	*kro-kuong*
9.	*kuo-xkup*	*kro-xkup* (*u* = French *eu*)
10.	*kuo-rubóp*	*kro-rbóp*

Ten is also *sak-kuará*, and this term is used in forming the numerals from 11 to 19.

11.	*sak kua-rá kinxó kua-rá*	*sak kua-rá kinxó kra-rá*
12.	*sak kua-rá kuú-bú*	*sak kua-rá kru-bú*
13.	*sak kua-rá kuo-miá*	*sak kua-rá kro-miá.*
20.	*sak puk*	
21.	*sak puk kinxó kua-rá*	*sak puk kinxó kra-rá*
22.	*sak puk kinxó kuu-bú*	*sak puk kinxó kru-bú*
30.	*sak mia*	
31.	*sak mia kinxó kua-rá* (etc.)	
40.	*sap kin*	
50.	*sak xkin*	
60.	*sak tërre*	
70.	*sak kok*	
80.	*sak kuong*	
90.	*sak xkop*	
100.	*sak dëbop*	
101.	*sak dëbop kinxó kua-rá*	
110.	*sak dëbop kinxó sak kua-rá*	
120.	*sak dëbop kinxó sak puk*	
130.	*sak dëbop kinxó sak mia*	
200.	*sak dëbop krin kuú-bú*	
210.	*sak dëbop krin kuú-bú kinxó sak kua-rá*	
300.	*sak dëbop krin kuo-mia*	
400.	*sak dëbop krin kuo-bkin*	
1000.	*sak dëbop krin kuo-ru bop.*	

Sak or *sap* means the fingers, that is, the ten fingers of both hands. One finger is *sapkuó;* ten, or *sak-kua-rá,* means the (ten) fingers once. In *sak-puk,* twenty, or twice ten, we find the Tírub *puk* or *pug,* instead of *bú.* In counting the whole series of numbers, the tens are not expressed, i. e., 11 is *kin-xó kua-rá* or *kin-xó kra-rá*, 16 is *kin-xó kuo-tërre* or *kin-xó kro-tërre;* and similarly 21, 31, or 26, 36, etc. But an isolated number must express itself completely: *hú sak-mia kin-xo kua-rá*, 31 houses, etc.

4. TÍRUB

The Tírub, on the headwaters of Tararia river, are partly the ancestors of the Térraba of Diquís valley. They seem to count up to seven only:

1. *fra-da*
2. *pug-da*
3. *mia-re*
4. *b-keng-de*
5. *x-keng-de*
6. *ter-de*
7. *ko-gu-de*

But their language has not yet been thoroughly investigated, and further research may bring to light a more comprehensive numeral system.

5. BRUNKA

The Brunka Indians certainly do not count beyond eight, and this is much the more to be wondered at, inasmuch as they are by far the most intellectual and civilized of all the Costa Rican aborigines. Their numerals are:

1. *eé-tse*
2. *boók*
3. *ma-ang*
4. *ba-qkang*
5. *kxi-xkang*
6. *téx-hang*
7. *kuú qkú*
8. *ut-ang*

Beyond eight they employ the Spanish numerals.

6. GUATUSO

The numeral system of the Guatusos is still more poverty-stricken, extending only to five; but they have also a word for ten, the root of which evidently means two:

1. *doo-ka*
2. *ppán-gi*
3. *poó-se*
4. *po-quái*
5. *o-tí-ni*
10. *pa-un-ka*

THE COSTA RICAN LANGUAGES IN GENERAL

In 1898, not having knowledge at that time of Dr Adolf Uhle's paper, presented ten years before, on the relations and migrations of the Chibcha,[1] I appended to my grammar of the Bribri[2] the following conclusions, the result of personal investigations on the subject:

(1) With but few and possibly casual exceptions there is no close connection between the languages of Costa Rica and those formerly spoken northward from that country.

(2) San Juan river and Lake Nicaragua form the true ethnic boundary between Central America and South America, excepting about the western slope, where northern migrations penetrated as far as the peninsula of Nicoya.

(3) The Costa Rican languages undoubtedly bear closest resemblance to those spoken toward the southeast, in Chiriquí and Veragua, and analogy can be traced to the Cuna, Chibcha, Tule, and the languages of more distant tribes in the northern part of South America.

(4) The Nicaragua depression forms a chorographic limit to the dispersion of the two great ethnic groups of Central America as well as to the distribution of plants and animals.

A further study of the subject has satisfied me that the second and fourth of these conclusions are too absolute in their assertion, since it has been found that the southern migration has gone beyond the San Juan river as far as Honduras, in the same way that, on the western side, the Chorotegas have penetrated far beyond the lake of Granada, to the end of the peninsula of Nicoya. For there is no doubt that the Ramas and Sumos of Nicaragua and the Payas of Honduras belong to the same linguistic stock as the Costa Rican Indians, as a comparison of the numerals in the table which follows quite clearly shows.

In 1888 Dr Uhle endeavored to prove the existence of a parental bond between the Isthmian Indians and the Chibcha, by comparing their numerals and an extended series of selected words. But at that time he did not have at his disposal very complete data on the languages of the former, so that a repetition of the experiment will give results far more conclusive.

An examination of the Guaymi and Dorasque dialects will show at once their analogy with the Térraba; they have the prefixes *kuo* and *kra*, more or less altered; and similar lexical devices are traceable in the Cuna and even in the Chibcha. In order to facilitate these comparisons, the first thing to be done is to eliminate the affixes, so as to have before us the numerical expressions only. Also, in the cases where there are several variations of a single idiom, the simplest root should be chosen as a standard. We have taken into account these details in forming the following tables, in which are compared the numerals of all the Central American tribes that may possibly belong to a single linguistic stock:

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[1] Adolf Uhle, *Verwandtschaften und Wanderungen der Tschibtscha* (*Compte-Rendu du Congrès International des Américanistes*, 7e session, Berlin, 1888, pub. Berlin, 1890).

[2] Loc. cit., p. 51.

Comparison of Numerals in Central American Languages

	1	2	3	4
Chibcha	*at-a*	*bo-za*	*mi-(ka)*	*mui-hi-(ka)*
Cuna	*(kué^n)-tai-ke*	*po-kua*	*pa-(gua)*	*pa-ke-(gua)*
Dorasque	*ku-é*	*mat, mo*	*mas, bak*	*pa-ki, pa-ka*
Guaymi	*ti, da*	*bu*	*mo*	*bo-ko*
Térraba	*ra*	*bu*	*mia*	*b-kin*
Tírub	*ra*	*pug*	*mia*	*b-keng*
Cabécara	*ek*	*be*	*mĕ-ñar*	*b-kir*
Bribri	*ek, et*	*bu*	*mĕ-ñar*	*kir*
Brunka	*et*	*bo*	*ma-ang*	*ba-qkang*
Guatuso	*doó-ka*	*pan*	*poó-se*	*po-qai*
Rama	*sai-ming*	*puk*	*pang-(sak)*	*kun-kun*
Sumo	*as*	*bo, bu*	*bas*	*arun-ka*
Paya	*as*	*pok*	*ma-i*	*ka*

	5	6	7
Chibcha	*hiz-(ka)*	*ta*	*ku-kup(ka)*
Cuna	*a-ta-le*	*ner-kua*	*ku-(ble-ge)*
Dorasque	*ma-le*	*pa-ka, ta-ka*	
Guaymi	*ri-ge*	*ti*	*ku-gu*
Térraba	*x-kin*	*tĕrre*	*kok*
Tírub	*x-keng*	*ter*	*ko-gu*
Cabécara	*s-ker*	*ter, ted*	*kur*
Bribri	*s-ker*	*ter*	*kur*
Brunka	*xki-xkang*	*tex-hang*	*ku-u-qku*
Guatuso	*o-ti-ni*		
Rama	*kuik-as-tar*		
Sumo	*cin-ka*		
Paya	*aun-ki*	*se-ra*	*ta-uá*

	8	9	10
Chibcha	*su-hu(za)*	*a-ka*	*ub-chi-hi-ka*
Cuna	*pa-ba-ka*	*pa-ke-ba-ge*	*am-be-gi*
Dorasque			
Guaymi	*kuó*	*kon-kon, é,kon*	*jó-to*
Térraba	*kuón*	*xkup*	*s-bop*
Tírub			
Cabécara	*pa-grë*	*të-ne-grë*	*dë-bom, do-bob*
Bribri	*pa-gul*	*su-ri-ti*	*dëbop*
Brunka	*ut-ang*		
Guatuso			*pa-un-ka*[1]
Rama			
Sumo			*sa-lap*
Paya	*o-uá*	*tax*	*u-ka*

MODES OF COUNTING

It is not for me to decide whether the variation according to the class of the objects to be counted, observed in the numerals of several of the languages referred to in this paper, is a peculiar and original feature of these languages, or whether it has been transmitted from a more highly developed linguistic system. With reference to the use of the fingers in primitive numeration and to the origin of the words expressing numbers, I may be allowed to mention that the Costa Rican Indians have a double mode of counting, i. e., they use their fingers in current oral computations, and grains of corn whenever they wish to keep a record of of any number. In my expeditions across the southern part of the country, my men used grains of corn to keep an account of their days of labor; and in Talamanca, a Bribri, who had collected beetles and land shells for me at the rate of ten for five cents, presented me with a number of grains corresponding to the groups of ten collected. The custom of counting by means of seeds was transmitted from the aborigines to the Spanish invaders, but instead of corn they used cacao beans, and these even acquired sometimes a monetary value. A popular expression still in vogue in Costa Rica, in speaking of a worthless thing, is "*No vale dos cacaos*"; that is to say, "It is not worth two cacao beans."

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[1] *Pa, pan* is two in Guatuso, *aun-ki* is five in Paya. It is not unlikely then, that, given the relation between the two languages, *pa-unka* is "two-five."

Now, the numeral expressions bear a well-defined correlation with the custom just described. In Bribri, *i-kuo* means a grain of corn, and *e-kra* means one (originally, without doubt, to count long things, *e-kuo* having fallen into disuse; compare the Térraba numerals). In Brúnka *e-e-tsi* and *e-e-tsé* have the same relative signification, and the *as* (= one) of the Sumos and Payas is found to correspond again with corn in *as-ka,* a corn-field. This seems to indicate that several, if not all, of the tribes of southern Central America counted by means of grains of corn, one grain finally becoming the symbol of unity.